

**REMARKS**

Claims 1-11 and 16-17 are currently pending in the present application, with claims 1 and 10 being written in independent form. Claims 1-2, and 7-10 have been amended for clarity. New claims 16-17 have also been added. Support for the amendments may be found, for instance, in the original Abstract and FIGS. 2b-2c of the original drawings. Thus, no new matter has been introduced into the claims.

**Allowable Subject Matter**

Applicants note with appreciation that the Examiner has deemed claim 11 as containing allowable subject matter. However, Applicants submit that rejected claims 1-10 and new claims 16-17 also contain allowable subject matter, at least for the reasons expressed below.

**Claim Rejections under 35 U.S.C. § 102**

Claims 1, 3-5, and 8-10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by US 6,026,677 (Bonin). Applicants respectfully traverse this rejection for the reasons below.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."<sup>1</sup>

Without conceding as to any of the Examiner's assertions that are not specifically addressed herein, Applicants note that Bonin, as a preliminary matter, fails to disclose or suggest a force sensor wherein "said membrane includes a **probe holding structure**," as recited by claims 1 and 10. Rather, Bonin clearly teaches that

---

<sup>1</sup> *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

the sensor element 2 (alleged "force sensor") includes a movable central plate 20 (alleged "membrane") supported by a suspension system 18, wherein the central plate 20 (alleged "membrane") is otherwise devoid of any other structure.<sup>2</sup> Although a sample holder 24 is arranged such that a bottom surface 29 will contact the upper surface of the central plate 20 (alleged "membrane") when the sensor element 2 (alleged "force sensor") is assembled<sup>3</sup>, the sample holder 24 is not a probe holding structure. Bonin explicitly teaches that the sample holder 24 is merely a "[m]eans for transmitting force" from a remote point to the central plate 20 (alleged "membrane") so as to result in a "deflection of the central plate 20 commensurate with the force exerted on the surface of the sample holder 24."<sup>4</sup>

For instance, FIG. 2 of Bonin illustrates an apparatus using a force sensor 56, which corresponds to the sensor element 2 of FIG. 1.<sup>5</sup> Referring to FIG. 2, it is clear that the force exerted by the probe 50 on the sample 52 will be transmitted to the central plate 20 (FIG. 1) of the force sensor 56 by way of the sample holder 24 (FIG. 1) so as to deflect the central plate 20 (FIG. 1).<sup>6</sup> Thus, the sample holder 24, although a force transmitting structure, is *not* a probe holding structure as asserted by the Examiner. In sum, Bonin fails to disclose or suggest a force sensor wherein "said membrane includes a **probe holding structure**," as recited by claims 1 and 10.

Furthermore, Bonin fails to disclose or suggest "a force sensor fabricated in a **micro machined** process" so as to have dimensions compatible with a

---

<sup>2</sup> Bonin: FIG. 1.

<sup>3</sup> Bonin: col. 9, ln. 58-60.

<sup>4</sup> Bonin: col. 9, ln. 49-50; col. 9, ln. 66 – col. 10, ln. 4.

<sup>5</sup> Bonin: col. 12, ln. 48-49.

<sup>6</sup> Bonin: FIGS. 1-2.

“**nanoindentation**” setup or system, as recited by claims 1 and 10. Rather, the sensor of Bonin only attains the level of “microindentation” testing<sup>7</sup>, which differs significantly in magnitude from “**nanoindentation**” testing.<sup>8</sup> Because the force sensor of claims 1 and 10 has been “micro machined” so as to have dimensions compatible with a “**nanoindentation**” setup or system, the force sensor can be used in a transmission electron microscope. Although Bonin discloses its sensor in connection with various microscopes (e.g., scanning tunneling microscope), the sensor of Bonin is nevertheless too large to be used in a transmission electron microscope.

For at least the reasons above, there can be no anticipation with regard to claims 1 and 10. Consequently, there can be no anticipation with regard to claims 3-5, 8-9, at least by virtue of their dependency on claim 1. Similarly, there can be no anticipation with regard to new claims 16 and 17, at least by virtue of their dependency on claims 1 and 10, respectively. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the above rejection.

**Claim Rejections under 35 U.S.C. § 103**

Claims 2 and 6-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bonin. Applicants respectfully traverse this rejection for the reasons below.

As articulated in the previous section, the above-discussed deficiencies are neither disclosed nor suggested by Bonin.

For at least the reasons above, a *prima facie* case of obviousness cannot be established with regard to claims 1 and 10. Consequently, a *prima facie* case of

---

<sup>7</sup> Bonin: Abstract.

obviousness cannot be established with regard to claims 2 and 6-7, at least by virtue of their dependency on claim 1. Similarly, a *prima facie* case of obviousness cannot be established with regard to new claims 16 and 17, at least by virtue of their dependency on claims 1 and 10, respectively. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the above rejection.

---

<sup>8</sup>

1 micrometer = 1000 nanometers; 0.001 micrometers = 1 nanometer.

**CONCLUSION**

In view of the above, Applicants respectfully request the allowance of all the pending claims in the present application.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. §1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By

John A. Castellano, Reg. No. 35,094  
P.O. Box 8910  
Reston, Virginia 20195  
(703) 668-8000

JAC/ACC:vrj  
*Acc*